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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,567	08/29/2005	Kiyoshi Miyashita	5759-0101PUS1	4049
2292 7590 11/14/2008 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER RADEMAKER, CLAIRE L				
ART UNIT 1795		PAPER NUMBER		
NOTIFICATION DATE 11/14/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/521,567

Applicant(s)

MIYASHITA ET AL.

Examiner

CLAIRE L. RADEMAKER

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/18/05, 8/22/08, 7/11/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 1/18/05, 8/22/08.

DETAILED ACTION

Election/Restrictions

1. Applicant's arguments, see pages 9-10 of Applicant's Response, filed July 11, 2008, with respect to traverse of the Election/Restriction requirement mailed June 11, 2008 have been fully considered and are persuasive. The Election/Restriction requirement of claims 1-30 has been withdrawn.

Claim Objections

2. Claim 2-5 & 7 are objected to because of the following informalities: the phrases "reducing agent in four times" (claims 2-3) and "reducing agent in twice or more" (claims 4-5) and "reducing agent in once or more" (claim 7) contain typographical errors. For examination purposes, these limitations were interpreted as meaning to read as follows: "reducing agent is four times" (claims 2-3) and "reducing agent is twice or more" (claims 4-5) and "reducing agent is once or more" (claim 7), respectively. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graham et al. (US 6,127,120).

With regard to claims 1-9, Graham et al. teaches a method for preparing a colloidal solution (col. 11, lines 20-29 & col. 36, lines 15-24) where colloidal particles are formed by boiling a solution containing a metal salt silver nitrate and a reducing agent sodium citrate (col. 36, lines 15-24), wherein the concentration of the metal salt in said solution is $6 \times 10^{-3} \text{M}$ (col. 36, lines 15-24), the concentration of the reducing agent is 0.01M (col. 36, lines 15-24), and the reaction time is 90 minutes (col. 36, lines 15-24), and wherein the average particle diameter of said colloidal particles is 4-50nm (col. 11, lines 47-51), but fails to teach the specified amount of metal salt or the specified ratio of metal salt to reducing agent.

While Graham et al. fails to teach the specified amount of metal salt or the specified ratio of metal salt to reducing agent, one of ordinary skill in the art would understand that the amount of metal salt used can be increased or decreased depending on how much end product (colloidal particles) is desired. Furthermore, one of ordinary skill in the art would understand that the ratio of metal salt to reducing agent can be varied in order to optimize the purity of the end product (colloidal particles). One of ordinary skill in the art would understand that if too little reducing agent is used, then not all of the metal salt will be reduced, causing the end product (colloidal particles) to contain unwanted unreacted metal salt. Furthermore, one of ordinary skill in the art would understand that if too much reducing agent is used, then the end product

(colloidal particles) will contain unwanted unreacted reducing agent. One of ordinary skill in the art would understand that it is common practice in a laboratory to adjust the ratio of reactants (such as a metal salt and a reducing agent) in order to optimize the purity of the end product (in this instance, colloidal particles). It has been held that "[w]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation" (MPEP 2144.05(II)).

5. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graham et al. (US 6,127,120), as applied to claim 7 above, and further in view of Le Duc et al. (US 3,235,473).

With regard to claims 10-12, Graham et al. teaches that the colloidal particles can be coated on a solid support such as a microscope slide or silicon wafer (col. 26, lines 19-23), but fails to teach the concept of fixing colloidal particles onto a substrate of the specified material.

Le Duc et al. teaches that a colloidal solution made from a metal salt, chloroplatinic acid (col. 3, lines 33-36) and a reducing agent, sodium citrate (col. 3, lines 69-70), can be fixed on the surface of a substrate by applying said colloidal solution to said substrate (col. 5, lines 25-28 & 43-46), where said substrate can comprise of woven glass, porous glass, or PTFE coated fiber glass (woven) (col. 2, lines 33-36 & 59-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of a substrate comprising of woven glass or porous glass of Le Duc et al. to the invention of Graham et al. because woven glass and porous glass are known to be effective substrates for a colloidal solution and one would have a reasonable expectation of success in doing so.

6. Claims 13-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le Duc et al. (US 3,235,473) in view of Graham et al. (US 6,127,120).

With regard to claims 13-30, Le Duc et al. teaches a fuel cell (col. 1, lines 8-17) comprising electrodes (col. 1, lines 8-17), and a method for manufacturing fuel cell electrodes (col. 1, lines 8-17), where a colloidal solution made from a metal salt, chloroplatinic acid (col. 3, lines 33-36) and a reducing agent, sodium citrate (col. 3, lines 69-70), can be fixed on the surface of a substrate by applying said colloidal solution to said substrate (col. 5, lines 25-28 & 43-46), where said substrate can comprise of woven glass, porous glass, or PTFE coated fiber glass (woven) (col. 2, lines 33-36 & 59-64), but fails to specifically state that the colloid particles are a low-temperature oxidation catalyst or teach the specified method of making said colloidal solution.

While Le Duc et al. fails to specifically state that the colloid particles are a low-temperature oxidation catalyst, one of ordinary skill in the art at the time of the invention would understand that this property is inherent to the compound, and that therefore the

colloid particles of Le Duc et al. would have the same properties, such as low-temperature oxidation, as the colloid particles of the instant application.

Graham et al. teaches a method for preparing a colloidal solution (col. 11, lines 20-29 & col. 36, lines 15-24) where colloidal particles are formed by boiling a solution containing a metal salt silver nitrate and a reducing agent sodium citrate (col. 36, lines 15-24), wherein the concentration of the metal salt in said solution is $6 \times 10^{-3} \text{M}$ (col. 36, lines 15-24), the concentration of the reducing agent is 0.01M (col. 36, lines 15-24), and the reaction time is 90 minutes (col. 36, lines 15-24), and wherein the average particle diameter of said colloidal particles is 4-50nm (col. 11, lines 47-51), but fails to teach the specified amount of metal salt or the specified ratio of metal salt to reducing agent.

While Graham et al. fails to teach the specified amount of metal salt or the specified ratio of metal salt to reducing agent, one of ordinary skill in the art would understand that the amount of metal salt used can be increased or decreased depending on how much end product (colloidal particles) is desired. Furthermore, one of ordinary skill in the art would understand that the ratio of metal salt to reducing agent can be varied in order to optimize the purity of the end product (colloidal particles). One of ordinary skill in the art would understand that if too little reducing agent is used, then not all of the metal salt will be reduced, causing the end product (colloidal particles) to contain unwanted unreacted metal salt. Furthermore, one of ordinary skill in the art would understand that if too much reducing agent is used, then the end product (colloidal particles) will contain unwanted unreacted reducing agent. One of ordinary skill in the art would understand that it is common practice in a laboratory to adjust the

ratio of reactants (such as a metal salt and a reducing agent) in order to optimize the purity of the end product (in this instance, colloidal particles). It has been held that "[w]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation" (MPEP 2144.05(II)).

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the method of making a colloidal solution of Le Duc et al. with the method of making a colloidal solution of Graham et al. because both methods are known to be effective methods of making a colloidal solution from a metal salt and a reducing agent, and one would have a reasonable expectation of success in doing so.

Conclusion

7. The prior art made of record and not relied upon which is considered pertinent to applicant's disclosure is as follows: Reetz et al. (US 2005/0148464) discloses that the size of colloid particles can be controlled by the amount of metal salt used to make said colloid particles.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLAIRE L. RADEMAKER whose telephone number is (571)272-9809. The examiner can normally be reached on Monday - Friday, 8:00AM - 4:30PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. L. R./
Examiner, Art Unit 1795

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795